three years (iPREX trial). The study objective was to estimate the cost-effectiveness of PrEP (Emtricitabine-Tenofovir combination pill) from the US payer perspective using both short-run and long-run outcomes. **METHODS:** We designed a decision analytical model using Excel® 2013 that mimicked the iPREX trial environment to compare costs and outcomes of PrEP plus usual care versus usual care alone (i.e. condom use). Outcomes included HIV cases averted over the trial period of 3 years and life years gained (LYG) over a lifetime time horizon. Since the adherence of PrEP was an important outcome measure in the trial, we factored in the PrEP adherence relationship of HIV acquisition into the model. Condom effectiveness was defined as probability of remaining HIV negative, assuming consistent condom usage. All costs were adjusted to 2014. **RESULTS:** From our base-case analysis, the treatment arm (PrEP plus usual care) resulted in an incremental cost of $ 1,369,784 per HIV case averted over a 3-year time frame and an incremental cost of $ 34,973.50 per LYG over a lifetime time horizon. Our one-way sensitivity analysis suggested that condom effectiveness below 92% can make PrEP to be cost-saving per LYG. Our probabilistic sensitivity analysis suggested that the cost-effectiveness probability of PrEP is at least 50% if the payer is willing to pay a minimum of $45,000-$50,000 per LYG. **CONCLUSIONS:** The short-run value of PrEP from the US payer perspective may be greater than their willingness-to-pay. Further research is warranted to understand subgroups where PrEP value differs as well as payers' willingness-to-pay for HIV-specific and generic health outcomes.

PIN53

COST-EFFECTIVENESS ANALYSIS OF A PARTIALLY EFFECTIVE HIV VACCINE IN SAN FRANCISCO

Adamson BJ[1], Bounthavong M[2], Kublin JG[3]Garrison L[1]
[1]*University of Washington, Seattle, WA, USA,* [2]*Univer, SEATTLE, WA, USA,* [3]*Fred Hutchinson Cancer Research Center, Seattle, WA, USA*

OBJECTIVES: An estimated 35 million people were living with HIV around the world in 2012. Although a toolbox of prevention methods including condoms, risk reduction counseling, voluntary circumcision, pre-exposure prophylaxis, and more are available, the development of an HIV vaccine is seen as the only hope for completely eradicating HIV. **METHODS:** A cost-effectiveness analysis of a partially effective HIV vaccine in combination with pre-exposure prophylaxis (PrEP) for high risk people was performed from the perspective of a United States (US) healthcare payer using a patient's lifetime horizon. Total direct costs, infections averted, and quality-adjusted life years (QALY) were the study outcomes. A decision tree modeled four preventive treatment strategies for high-risk men who have sex with men (MSM) in San Francisco: 1) vaccine and PrEP, 2) vaccine alone, 3) PrEP alone, and 4) no prevention strategy. **RESULTS:** A vaccine was found to be most cost-effective and dominant prevention strategy in this analysis. The incremental cost-effectiveness ratio (ICER) for a vaccine and PrEP combined was $45,704 per QALY, falling below a $100,000 per QALY willingness-to-pay threshold. An HIV vaccine alone was estimated to cost the payer $6,659 per infection averted and was a dominant strategy compared to no preventive intervention. PrEP alone cost more than $1.15 million at current pricing per infection averted, and combined with a vaccine, the cost per infection averted was reduced to $904,326. **CONCLUSIONS:** HIV incidence was the largest factor driving the cost per infection averted and cost per QALY for all prevention strategies, followed by the cost of PrEP for the two strategies that included it. US payers should actively advocate development, approval, coverage, and use of a vaccine to avert new HIV infections as a more cost-effective strategy than current preventive methods for people at high risk of HIV infection in the United States.

PIN54

ROLLING OUT ORAL PRE-EXPOSURE PROPHYLAXIS (PREP) IS A COST-EFFECTIVE HIV PREVENTION STRATEGY AMONG THE LOS ANGELES COUNTY (LAC) MEN WHO HAVE SEX WITH MEN (MSM)

Drabo EF[1], Hay JW[1], Vardavas R[2], Wagner Z[3], Sood N[1]
[1]*University of Southern California, Los Angeles, CA, USA,* [2]*Rand Corporation, Santa Monica, CA, USA,* [3]*University of California, Berkeley, Berkeley, CA, USA*

OBJECTIVES: We assess the tradeoffs between the costs and benefits of choosing alternate HIV prevention strategies, including the status-quo (current HIV testing with antiretroviral therapy [ART] initiation at CD4 ≤500), testing (expanded HIV testing with ART initiation at CD4 ≤500), test-and-treat (expanded HIV testing and early ART start), and PrEP (PrEP initiation by uninfected individuals) strategies. **METHODS:** A mathematical epidemiological model is developed to simulate HIV incidence among 15-65 year old MSM in LAC. An economic model uses the epidemic model results to estimate the cost and effectiveness of 624 variants of the testing, test-and-treat and PrEP strategies from a societal perspective. For each strategy, we estimate the number of new HIV infections averted, the discounted costs and quality-adjusted life years (QALYs), and the incremental cost-effectiveness ratios. The sensitivity and robustness of the estimates are assessed via univariate and bootstrapping probabilistic sensitivity analyses. **RESULTS:** In the base case analysis, test-and-treat, PrEP, and testing are highly cost-effective relative to status-quo ($21 000, $26 000, and $27 500/QALY) and significantly reduce new infections. This is imputable to the preventive benefits of PrEP and early knowledge of infection status via testing, and the survival gains from early ART initiation. Thirteen strategies consisting of more aggressive test-and-treat and PrEP approaches trace the efficient frontier for decision making. More aggressive strategies are more costly but yield better effectiveness profiles, albeit with diminishing returns. These results remain generally robust to uncertainty in the epidemic, cost, and effectiveness parameters. The relative effectiveness of PrEP is however sensitive to PrEP and ART adherence and initiation rates. **CONCLUSIONS:** PrEP and test-and-treat strategies are cost-effective alternatives to the status-quo for HIV prevention among LAC MSM. When affordable, aggressive combinations of these strategies should be implemented. The effectiveness of these strategies could be enhanced with greater adherence to ART and PrEP.

PIN55

ECONOMIC ANALYSIS OF EMPIRIC VERSUS DIAGNOSTIC-DRIVEN STRATEGIES FOR IMMUNOCOMPROMISED PATIENTS WITH SUSPECTED ASPERGILLUS INVASIVE FUNGAL INFECTIONS IN CHINA

Qin L[1], Chen Y[2], Lesher B[1], Liu Q[3], Charbonneau C[4], Earnshaw SR[5], McDade C[5], Mao N[6], Gao X[1]
[1]*Pharmerit International, Bethesda, MD, USA,* [2]*Pfizer Investment Co. Ltd., Beijing, China,* [3]*Southern Medical University- Nanfang Hospital, Guangzhou, China,* [4]*Pfizer Inc, Paris, France,* [5]*RTI Health Solutions, Research Triangle Park, NC, USA,* [6]*China Pharmaceutical University, Nanjing, China*

OBJECTIVES: To examine the clinical and economic impact of diagnostic-driven (DD) versus empiric treatment strategies in neutropenic patients with suspected Aspergillus invasive fungal infections (IFIs) in Beijing, Chengdu, and Guangzhou, China. **METHODS:** A decision-analytic model was used to estimate total costs and survival associated with a DD and empiric treatment strategy for managing suspected IFIs in adult patients with neutropenia due to hematological malignancy or autologous/allogeneic stem cell transplant. In the DD strategy, IFI was identified via serum galactomannan (GM) enzyme-linked immunosorbent assay (ELISA) so that early initiation of targeted treatment could be administered. IFI incidence (10.9%), portion of actual IFIs diagnosed via empiric treatment (30%), overall mortality (10.7%), and IFI-related mortality (28.6%) were obtained from the literature. Survival rates were generated based on the proportion of patients with identified and appropriately treated IFIs. Empiric and DD treatment patterns and resource use were based on clinical opinion (3-5 clinicians from top hospitals per city). Medical costs (in 2014 Chinese Yuan [¥]) included antifungal drugs, treatment-related adverse events, and other medical resource costs. City-specific costing sources were used wherever possible. **RESULTS:** Medical costs were lower for the DD versus the empiric strategy in Beijing (¥4,118 vs ¥5,245), Chengdu, (¥5,463 vs ¥6,389), and Guangzhou (¥9,762 vs ¥10,351). Fewer patients received antifungal treatment using the DD strategy (6.7% versus 11.4%), and survival rates were similar. One-way sensitivity analysis showed results were most sensitive to changes in GM test sensitivity followed by IFI incidence. Probabilistic sensitivity analysis showed that treating via a DD strategy was dominant 99% of the time. **CONCLUSIONS:** These results suggest that in China, a DD strategy to identify IFIs in immunocompromised patients with persistent fever in order to better target antifungal treatment compared to an empiric antifungal treatment strategy may be cost-saving, while maintaining a similar overall survival rate.

PIN56

ECONOMIC EFFECTIVENESS OF CEFTAROLINE FOSAMIL FOR THE TREATMENT OF HOSPITALISED PATIENTS WITH PNEUMOCOCCAL COMMUNITY-ACQUIRED PNEUMONIA FROM A SOCIETAL PERSPECTIVE

Belkova YA, Rachina SA, Kozlov RS
Smolensk State Medical Academy, Smolensk, Russia

OBJECTIVES: We aimed to assess cost-effectiveness of ceftaroline fosamil (CF) for treatment of hospitalised patients with pneumococcal community-acquired pneumonia (PCAP) in Russia from societal perspective. **METHODS:** Decision tree model based on results of two 3rd phase clinical trials (FOCUS1/FOCUS2) was created to assess clinico-economic implications of PCAP treatment with CF vs. ceftriaxone (CS) for society. Day 4 early clinical response (73% vs. 56%, p=0,03) was taken for effectiveness outcome. Direct and indirect expenses associated with initial episode, possible recurrence of PCAP, direct and delayed attributive mortality were taken into consideration. Original drugs costs were extracted from wholesale prices database (www.pharmindex.ru). Cost of therapy was calculated to correspond treatment regiments in selected trials: CF 600mg BID vs. CS 1g QD and common in Russia CS 2g QD. Alternative treatment in case of inefficacy was chosen per experts' opinion. Indirect expenses evaluation was based on human capital approach (loss in GDP per capita) with 5% discount rate per year. All expenses were converted to US dollars at exchange rate on the date of calculation (June 2014). Uncertainty was explored in a series of one- and two-way deterministic and in probabilistic sensitivity analysis. **RESULTS:** Respective total expenses of PCAP treatment with CF 600mg BID vs. CS 1g vs. CS 2g QD were as follows: $16548.6 vs. $16894.4 vs. $16972.3, making CF strategy the dominating one. Results were sensitive to change in rate of early clinical response to comparators and duration of CF course. Given willingness-to-pay $12.8 per additional 1% of clinical response (per experts' opinion) 95.1% and 97.3% of iterations in probabilistic sensitivity analysis recommended CF over CS 1g or 2g QD for treatment of PCAP. **CONCLUSIONS:** CF 600mg BID is more cost effective then CS 1g or 2g QD in the treatment of hospitalised patients with PCAP in Russia from societal perspective.

PIN57

ECONOMIC IMPACT OF SIMULATION-BASED TRAINING (SBT) FOR CENTRAL VENOUS CATHETER (CVC) INSERTION

Asche CV[1], Barker L[2], Ren J[1], Kim M[1], Kirkness CS[1], McGarvey J[2], Short J[2], Vozenilek J[2]
[1]*University of Illinois College of Medicine at Peoria, Peoria, IL, USA,* [2]*Jump Trading Simulation & Education Center and the OSF Healthcare, Peoria, IL, USA*

OBJECTIVES: CVC insertion is one of the most commonly performed medical procedures in the intensive care hospital setting. The clinical impact of SBT in the procedure has been demonstrated previously. However, little is known about the economic impact of such educational interventions. This study aimed to analyze the costs associated with outcomes attributable to the implementation of a SBT program for CVC insertion. **METHODS:** The SBT training interventions were implemented for residents working in the MICU at OSF St. Francis Medical Center in Peoria, Illinois, from 09/01/2012 to 12/31/2013. Data from an historical control group (traditional training) was selected during a parallel time period from 09/01/2010 to 12/31/2011. Collected information included total hospital cost, training cost, LOS, complications, and patient demographics. Costs were adjusted to 2014 dollars. Adjusted generalized linear models were used to estimate the margin effects for the cost and the effectiveness. **RESULTS:** 86 residents placed 353 CVC lines in patients

with an average patient age of 63.4 (±15.8) years in the SBT group, and 81 residents placed 262 CVC catheter lines in patients with an average age of 62.8 (±15.2) years in the control group. Compared to the traditional training, the SBT was a dominant case with cost-saving (-$5,062, p=0.002), and reductions of overall complications (3.9%, p=0.017) and severe complications (3%, p=0.043) per admission, resulted in the incremental cost-effectiveness ratios of -$1,298 (= -$5,062/3.9%) and -$1,687 (= -$5,062/3.0%) per 1% averted probability of overall and severe complications gained, respectively. The total benefit cost ratio was 10.2. Even in the first year, the SBT demonstrated a high return on investment (ROI) of 649% with a $4,863 net benefit per admission. The ROI could reach 934% and 986% in 5 years and 10 years, respectively. **CONCLUSIONS:** Using SBT for CVC insertion is a cost-effective approach that can be widely implemented.

PIN58

COST-EFFECTIVENESS OF ANIDULAFUNGIN FOR THE TREATMENT OF INVASIVE CANDIDIASIS IN COLOMBIA

Diaz JA[1], Urrego-Novoa JR[2], Moreno JA[3], Huerfano C[2], Prieto VA[4]
[1]*Universidad Nacional de Colombia, BogotÃ¡ D.C., Colombia,* [2]*Universidad Nacional de Colombia, Bogota, Colombia,* [3]*Salud Total EPS, BogotÃ¡ D.C., Colombia,* [4]*Pfizer SAS, Bogota, Colombia*

OBJECTIVES: The aim of this analysis is to estimate the cost-effectiveness of anidulafungin for the treatment of invasive candidiasis in Colombia. **METHODS:** We constructed a decision tree to determine the incremental cost-effectiveness ratio (ICER) of anidulafungin (200 mg on the first day, followed by 100 mg daily) compared to amphotericin B deoxycholate (0.7-1.0 mg daily); amphotericin B liposomal (5.0 mg/ kg daily); caspofungin (70 mg on the first day followed by 50 mg daily) and fluconazole (800 mg on the first day followed by 400 mg daily) for the treatment the patients with invasive candidiasis. The perspective is that of the Colombian health system including only direct costs. All currency units are in USD $ (1 USD$ = COP 1,971). We used a time horizon of life expectancy. A 5 % discount rate was used. The results were measured in quality-adjusted life year (QALY). The efficacy, safety and utility data were taken from the literature. Bayesian mixed treatment comparison method was applied for the comparison of treatments. The costs of procedures were obtained of ISS tariff manual of 2001 and for drugs were used current price regulation and the SISMED database. Univariate and probabilistic sensitivity analyses were performed. **RESULTS:** The total expected costs per patient were: anidulafungin USD$ 4,685.61; amphotericin B deoxycholate USD$ 928.22; amphotericin B liposomal USD$ 25,569.12; caspofungin USD$ 3,368.48; fluconazole USD$ 628.39. The results for each alternative in terms of QALY were: anidulafungin 3.08; amphotericin B deoxycholate 2.26; amphotericin B liposomal 1.90; caspofungin 2.14; fluconazole 2.46. The ICER per QALY of anidulafungin compared to fluconazole was USD$ 6,521.38. Amphotericin B deoxycholate, amphotericin B liposomal and caspofungin were dominated alternatives. **CONCLUSIONS:** Assuming as threshold for Colombia GDP per capita USD$ 7,609.42 anidulafungin is a cost-effective alternative for the treatment of the patients with invasive candidiasis.

PIN59

AN ECONOMIC COMPARISON OF LINEZOLID AND VANCOMYCIN FOR THE TREATMENT OF METHICILLIN-RESISTANT STAPHYLOCCOCUS AUREUS (MRSA) RELATED COMPLICATED SKIN AND SKIN STRUCTURE INFECTIONS (CSSSI) IN THE KINGDOM OF SAUDI ARABIA

Stephens JM[1], Gao X[1], Patel D[1], Li JZ[2], Haider S[3]
[1]*Pharmerit International, Bethesda, MD, USA,* [2]*Pfizer, Inc., San Diego, CA, USA,* [3]*Pfizer Inc, Groton, CT, USA*

OBJECTIVES: To assess the value of linezolid compared with vancomycin in the treatment of cSSSIs caused by MRSA from a payer perspective in the Kingdom of Saudi Arabia (KSA) using a two week decision analytic model. The model comprehensively covers direct medical costs within inpatient and outpatient settings related to both treatments. **METHODS:** Published literature and local expert opinion provided clinical inputs and resource utilization data on MRSA efficacy, failure/ AE rates, length of stay (LOS), at-home parenteral administration, and outpatient resource use. Cost data were derived from local sources and expert feedback. The base case analysis assumed equal efficacy for treatment comparators within the 14 day length of treatment timeframe. Scenario-based sensitivity analyses were conducted by varying LOS data, using unit LOS costs from World Health Organization website, and excluding peripherally inserted central catheter (PICC) costs. **RESULTS:** The base case analysis resembled a cost-minimization analysis due to an equal efficacy assumption. Total drug acquisition costs were lower for vancomycin compared to linezolid (SAR1,885 vs. SAR7,641 respectively). However, the overall cost of treatment including drugs, clinical failures, complications, and outpatient parenteral administration were lower with linezolid (SAR14,246) than with vancomycin (SAR15,804) resulting in substantial cost-savings of SAR1,558 vs. vancomycin. Linezolid provided savings due to lower outpatient medical costs (SAR1,548 vs. SAR7,831), specifically from outpatient parenteral administration. These findings were reinforced in all of the scenario sensitivity analyses, and linezolid was consistently the cost saving treatment alternative. **CONCLUSIONS:** Results from this analysis demonstrate the overall economic savings resulting from linezolid use compared with vancomycin for the treatment of MRSA cSSSI. Savings are seen primarily in the outpatient settings because linezolid has an oral formulation and does not require outpatient parenteral administration compared to other intravenous antibiotics.

PIN60

COST-EFFECTIVENESS ANALYSIS OF OSELTAMIVIR IN THE INFLUENZA PNEUMONIA PREVENTION IN COLOMBIA

Castañeda-Orjuela C, Vargas-Sandoval G, De la Hoz-Restrepo F
Instituto Nacional de Salud, Bogota D.C., Colombia

OBJECTIVES: Influenza disease may result in a severe disease causing hospitalization and deaths in younger children and older adults. Early antiviral treatment may improve clinical outcomes. Our goal was to estimate the oseltamivir cost-effectiveness in the prevention of pneumonia due to influenza in the Colombian children and elderly population. **METHODS:** A probabilistic decision-tree model to simulate Influenza-Like Syndrome (ILS) burden of disease and influenza pneumonia complications in Colombian population was programmed in excel. Transition probabilities and care costs for Colombia were obtained from a literature review and surveillance databases. Oseltamivir effectiveness was meta-analyzed from randomized trials and observational studies. Incremental cost-effectiveness ratio (ICER) for oseltamivir in the prevention of pneumonia complication in population under five years of age and older than 65 year old with ILS was estimated. Monte Carlo simulation with 10,000 iterations were used to estimate 95% confidence interval. Costs were expressed in 2013 USD. **RESULTS:** A total of 275,788 ILS cases in children and 86,675 in elderly population were estimated for 2014. Whit no oseltamivir would occur 75,789 and 62,817 pneumonias in children and elderly, respectively, and a total 22,719 deaths. Including the oseltamivir treatment at 90% coverage would avert 33,462 pneumonias and 6639 pneumonia deaths. The oseltamivir cost were estimated on US$ 6,419,552, and it would be a cost-saving intervention in population younger than 5 years old and equal or older than 65 years old with an ICER of US$ -953 (IC95% US$-934 to -759). **CONCLUSIONS:** The use of oseltamivir in children and elderly whit ILS appear to be a cost-saving strategy in Colombia, to prevent pneumonia and death complications, when it is administrated between 48 hours of symptoms onset.

PIN62

PROJECTED COST SAVINGS OF INTRODUCING FECAL MICROBIOTA TRANSPLANT TREATMENT FOR CLOSTRIDIUM DIFFICILE INFECTION IN CANADA

Zowall H, Brewer C, Deutsch A
Zowall Consulting Inc., Westmount, QC, Canada

OBJECTIVES: To project the cost savings of introducing Fecal Microbiota Transplant (FMT) treatment for Clostridium difficile infection (CDI) as compared to current practice, by age, and three major subpopulations; hospitals, long-term care facilities (LTCF), and communities. **METHODS:** We modified our existing CDI decision analytic model to project the total cost savings of FMT as compared to current antibiotic treatment for CDI over five years (2015-2019), by integrating current annual trends in CDI, and population projections for Canada, by age, gender, and three major subpopulations. To estimate current annual trends in CDI we conducted a systematic analysis of the latest provincial and federal CDI data in Canada. **RESULTS:** Over the next five years, CDI treatment with FMT is estimated to result in a potential cost savings of $300.4 M as compared to current practice. We projected 20,700 fewer cases of CDI in the FMT treatment arm, due to fewer recurrences for FMT. The recurrence rates for current antibiotic treatment were estimated at 25.3% and 35.9% for first and second recurrences, respectively. The recurrence rate for FMT was 10.4%. Over 90% of the cost savings for FMT as compared to antibiotic treatment are for ages 60 and over, with $127.3 M for ages 60 to 79 years, and $148.3 M for ages 80 and over. By subpopulation, over the next five years FMT would result in a potential cost savings of $216.5 M for hospital-acquired CDI (HA-CDI), and $68.7 M for community-acquired CDI (CA-CDI). **CONCLUSIONS:** Introducing FMT could result in a substantial cost savings over the next five years in Canada. As the Canadian population ages, and the numbers of CDI cases among the elderly might grow, FMT holds the promise of higher potential cost savings.

PIN63

ECONOMIC IMPACT OF SOFOSBUVIR BASED REGIMENS IN HEPATITIS C: AN INTERNATIONAL PERSPECTIVE

Parekh MH, Dashputre AA, Kamal KM
Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA, USA

OBJECTIVES: Chronic hepatitis C virus (HCV) incurs significant economic costs to the society. There is a paradigm shift in the treatment of hepatitis C with the introduction of sofosbuvir. It is highly efficacious and safe but is an expensive treatment alternative to existing treatment options. The study goal is to provide an in-depth review of economic studies that have evaluated the cost-effectiveness of sofosbuvir in hepatitis C. **METHODS:** A comprehensive literature search was conducted using electronic databases such as PubMed, CINAHL, Scopus, and Cochrane Reviews. The search strategy included treatment-naïve as well as treatment-experienced patients of all genotypes. Full-text, published articles from Europe and United States (U.S.) were identified. Data on decision model, perspective, comparators, time horizon, costs, outcomes, price year, sensitivity analysis, and results were extracted from the reviewed studies. **RESULTS:** A total of 9 economic studies (5 U.S. and 4 Europe) were identified from the literature. The comparators included no treatment, peginterferon+ribavirin, boceprevir, telaprevir, and simeprevir based regimens. Markov model utilized by all studies to simulate disease progression over a lifetime horizon. The cost/QALY for treatment-naïve, patients ranged from US$21,869-$31,152 for genotype 1 and US$78,146-$99,189 for genotype 2 and 3. The cost/QALY for treatment-experienced patients was US$2,277-$4290 for genotype 1 and US$55,280-$128,324 for genotype 2 and 3. Overall, sofosbuvir was cost effective in younger patients and those with severe fibrosis. Sofosbuvir and simeprevir combination led to an average cost savings of US$91,590. **CONCLUSIONS:** Genotype 1 HCV is the predominant genotype that is generally difficult to treat. Sofosbuvir is cost effective for both treatment-naïve and treatment-experienced genotype 1 patients. For genotypes that are not predominant, decision on the use of sofosbuvir should be made based on the willingness-to-pay threshold values. Factors that were found to influence cost-effectiveness of sofosbuvir include disease severity, duration of treatment, and age of patients.

PIN65

THE COST EFFECTIVENESS OF A NOVEL HIGH PRICED COMBINATION THERAPY FOR HEPATITIS C IN TREATMENT NAÏVE GENOTYPE 1 INFECTED PATIENTS

McGinnis JJ, Hay JW
University of Southern California, Los Angeles, CA, USA